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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,790	12/21/2005	Hiroki Nakamura	283682US0PCT	4348
22850 7590 07/15/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER ASINOVSKY, OLGA	
			ART UNIT 1796	PAPER NUMBER
			NOTIFICATION DATE 07/15/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/561,790	<b>Applicant(s)</b> NAKAMURA ET AL.	
	<b>Examiner</b> OLGA ASINOVSKY	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-12 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12 and 15-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/04/2008&amp;12/21/2005</u> .                               | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Upon the amendment of 04/28/2008, claim 1 claims a modified polyolefin resin produced by subjecting a polyolefin resin (A) to a graft modification by vinyl monomer(s) (B) comprising 4-t-butylcyclohexyl (meth)acrylate; wherein the vinyl monomer(s) (B) comprises no unsaturated carboxylic acid or its anhydride.

### ***Claim Rejections - 35 USC § 112***

1. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 is depending on claim 1. The monomer (b) does not exist in the currently amended claim 1. Therefore, the presence of the (meth)acrylate monomer (b) in claim 19 is confusing.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 5, 6, 7, 9, 11-12, 15, 16, 17, 18, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinzte-Bruning et al U.S. Patent 5,817,370.

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Hinzte-Bruning discloses water-dilutable binders comprising: (A) is a mixture of (a1) (meth)acrylic acid with (a2) an ethylenically unsaturated monomer; (B) a halogen-free polyolefin; and (C) a free radical initiator, column 2, lines 23-53. The mixture of (meth)acrylic acid (a1) and (a2) such as C4-alkyl cyclohexyl is qualified for the claimed 4-t-butylcyclohexyl (meth)acrylate, because this mixture produces the analogous ester under the process condition specified at column 4, lines 31-33. Also, reference discloses that (a2) is claimed tert-butylcyclohexyl (meth)acrylate, column 3, line 42, for **the present claim 1**. The monomer having a hydroxyl group in the molecule such as, for example, 2-hydroxyethyl acrylate, column 3, line 45, is readable in the **present claims 5, 15, 16 and 17**. A halogen-free polyolefin includes a random copolymer of polypropylene and ethylene, column 5, lines 49-50, for **the present claims 9, 11 and 12**. A halogen-free polyolefin has a weight-average molecular weight of from 1000 to 100,000, column 3, line 66, for the **present claim 20**. The graft modified halogen-free polyolefin is readable in the **present claim 2**. The grafted ethylenically unsaturated monomer or a mixture of ethylenically unsaturated monomers is free of chlorine atom, for **the present claim 18**. The aqueous coating binder can be used as primer, column 2, line 18, for **the present claim 6**. The aqueous coating composition is basecoat material for coating substrates made of plastic, column 8, lines 40-41, thus, the adhesive properties to a resin having a low- or non-polarity is readable in **the present claims 7 and 21**.

4. The difference with the present claim 1 is that “the vinyl monomer(s) (B) comprises no unsaturated carboxylic acid or its anhydride.”

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5. It would have been obvious to one of ordinary skill in the art to use a process for graft polymerization of a mixture of (meth)acrylic acid and C4-alkylcyclohexyl monomer in Hinzte-Bruning invention on to a halogen-free polyolefin wherein said mixture of (meth)acrylic acid and C4-alkylcyclohexyl monomer is inevitably create ester such as tert-butylcyclohexyl (meth)acrylate in light of the fact that the polymerization of the mixture of (A) in the presence of components (B) and (C) is carried out in bulk in aqueous emulsion polymerization condition.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hinzte-Bruning et al U.S. Patent 5,817,370 as applied to claims 1-2, 5, 6, 7, 9, 11-12, 15, 16, 17, 18, 20-21 above, and further in view of Ilenda et al U.S. Patent 4,957,974. Hinzte-Bruning does not disclose polyolefin resin having low crystallinity or noncrystalline polyolefin in the present claim 10.

Ilenda has been considered in the prior office action mailed on 02/08/2008. All discussions are adequately set here.

Ilenda discloses graft copolymer wherein the backbone polymer is low density polyethylene, column 6, line 63 through column 7, line 25 and column 12, line 41, wherein the molecular weight is preferably in the range of 50,000 to 200,000, column 7, line 40. The preference for selection of polyethylene is relatively low molecular weight, column 7, line 44. There is no evidence that a low density polyethylene has a crystalline property in Ilenda invention.

It would have been obvious to one having ordinary skill in the art to substitute a halogen-free polyolefin in Hinzte-Bruning invention with a low density polyethylene by teaching in Ilenda invention for the purposes for increasing melt flow rate of the resulting graft copolymer for coating application and for purposes for obtaining desirable adhesive properties.

7. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinzte-Bruning as applied to claim 1-2, 5, 6, 7, 9, 11-12, 15, 16, 17, 18, 20-21 above, and further in view of Ilenda et al U.S. Patent 4,957,974, and further in view of Usui et al U.S. Patent 6,800,688.

Ilenda and Usui have been discussed in the previous office actions. All discussions are adequately set here.

The primary reference to Hinzte-Bruning does not disclose a printing ink comprising the modified polyolefin resin in the present claim 8.

All references disclose polyolefin backbone polymer and grafted ethylenically unsaturated monomers for producing grafted polymer having desired adhesive properties.

Usui discloses graft modified polyolefin resin for an adhesive, a primer or a paint, or an ink application, column 3, lines 39-49. Usui discloses the analogous graft modified polyolefin using in a wide variety of applications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a graft polymerization process in Hinzte-Bruning invention with the specified 4-t-

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butylcyclohexyl (meth)acrylate grafted monomer for grafting said monomer on to a low density polyethylene backbone by teaching in Ilenda invention and using the resulting graft-modified polyethylene as adhesive or primer, or ink formulation as evidence in Usui invention, because the analogous graft copolymer having the same adhesive properties can be used in a variety of desired application.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLGA ASINOVSKY whose telephone number is (571)272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A.  
July 03, 2008

Olga Asinovsky  
Examiner  
Art Unit 1796

/Randy Gulakowski/  
Supervisory Patent Examiner, Art Unit 1796



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